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SUPREME COURT, U.S.

In the Supreme Court of the United States

OCTOBER TERM 1948.

Nos. 184 and ____

GRAVER TANK & MFG. CO., INC.,
THE LINCOLN ELECTRIC COMPANY,
GRAVER TANK & MFG. CORPORATION,
Petitioners,

v.

THE LINDE AIR PRODUCTS COMPANY,
Respondent.

PETITION FOR WRITS OF CERTIORARI
To the United States Circuit Court of Appeals
For the Seventh Circuit, and
BRIEF IN SUPPORT.

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GRAVER TANK & MFG. CORPORATION,
Petitioners,

v.

THE LINDE AIR PRODUCTS COMPANY,
Respondent.

PETITION FOR WRITS OF CERTIORARI.

To the Honorable the Chief Justice and the Associate Justices of the Supreme Court of the United States:

Petitioners pray that writs of certiorari issue to the United States Circuit Court of Appeals for the Seventh Circuit to review the separate judgments entered by said court on April 16, 1948 in:

1. Cause No. 9481 on the docket of said court, wherein petitioners were appellees, and
2. Cause No. 9482 on the docket of said court, wherein petitioners were appellants.

These judgments relate to United States Letters Patent No. 2,043,960, issued to Lloyd Theodore Jones, *et al.* (R. 955), for a process of electric welding and fluxes, or compositions for use therewith.

The judgments were entered (R. 1004-5) upon appeals separately taken by petitioners and respondent from the judgment of the District Court of the United States for the Northern District of Indiana, Hammond Division.

The action was brought by respondent, The Linde Air Products Company as owner of the patent, charging infringement by petitioners Lincoln and the Graver companies.

The District Court, 75 U.S.P.Q. 230 (R. 907):

1. Held *invalid* the claims of the patent (i.e., claims 1 through 9 and 11 through 17) relating to a process of electric welding. The Circuit Court of Appeals (R. 990), 167 F. (2d) 531, held the claims valid. It *reversed.*

2. Held *invalid* certain of the claims (i.e., claims 24, 26 and 27) to fluxes for use in the process. The Circuit Court of Appeals, holding the claims valid, *reversed.*

3. Held *valid and infringed* certain other claims (i.e., claims 18, 20, 22 and 23) pertaining to a flux. The Circuit Court of Appeals *affirmed.*

4. Held that respondent had *not misused* the patent by requiring as a condition of its license the purchase of unpatented welding rod. The Circuit Court of Appeals *affirmed.*

The judgments below, although separate, arise out of a single suit, relate to a single patent, and in each of the courts below issued upon a single opinion. Accordingly, the two writs of certiorari are prayed for in this single petition, separately filed in each case.

JURISDICTION.

This Court has jurisdiction to review the judgments in question under Section 240(a) of the Judicial Code, as amended by the Act of February 3, 1925, 28 U. S. C. 347(a).

The judgments below were entered April 16, 1948 (R. 1004-5). Petition for rehearing (R. 1006), duly filed, was denied without opinion on May 14, 1948 (R. 1034).

MATTER INVOLVED.

The Jones patent in suit issued June 9, 1936 (R. 955) owned by respondent, The Linde Air Products Company, by assignment from its parent Union Carbide & Carbon Corporation, covers acclaimed new process of electric welding and compositions or fluxes for use therein.[1]

The action, brought by the patent owner, Linde, charges infringement by Lincoln, a manufacturer of electric arc welding equipment and supplies, and the Graver companies, users of Lincoln materials.

Basically the controversy is this:

1. Can the process claims of the patent in suit be held valid and so made the basis of a charge of infringement by the Lincolnweld process of electric arc welding developed under the teaching of the prior J. C. Lincoln patent, No. 1,589,017, now expired, and licensed under the prior Robinoff patent, No. 1,782,316, likewise now expired? The District Court found the process claims invalid. Accordingly, it did not reach the question of infringement. The Circuit Court of Appeals, reversing, held these claims valid.

2. Does the Lincolnweld flux used in electric arc welding, which follows the prior and now expired Miller patent, No. 1,754,566, infringe the flux claims of the patent in suit? The District Court held certain of the flux claims invalid; others it found valid and infringed. The Circuit Court of Appeals held all of the claims valid. Accordingly, it reversed as to the claims held invalid and affirmed as to the claims held valid and infringed.

[1] Excerpts from the patent are set forth in the appendix. All claims are in issue except process claim 10 and composition claims 19, 21, 25, 28, 29 (R. 17). It is not claimed these are infringed (R. 17).

The result of what the Circuit Court of Appeals has done is to re-grant to respondent Lingle the expired Lincoln, Robinoff and Miller patents. Although by law those patents are in the public domain, under the judgments below no one can know how far he can practice those patents before he becomes an infringer of the expanded Jones.

Electric Welding.

To see how these expired patents have been reclaimed from the public domain and handed over to respondent, it is important to bear in mind certain facts about the process of welding steel. What occurs is that the pieces to be joined, melted at their adjoining edges, are merged into a single piece. Two basic problems are involved: one is the provision of the necessary heat, and the other is the protection of the molten metal from the contaminating effects of contact with the air.

—Use of Electric Arc Old.

The electric current has long been used as the source of heat in welding. In one such method, which has been known and used for over 50 years (R. 440), an electric arc provides the welding heat. In this, the arc welding method, the electric current traverses a gaseous space between an electrode and the plates to be welded (R. 66, 236).

The arc, bridging the gap from the metal electrode to the metal work piece, attains temperatures described as unknown in practical application prior to atomic fission (R. 238-9, 440) and is in this process the heating instrumentality. It melts the electrode and the edges of the adjoining plates. The metal so melted coalesces to form a solid seam.

If, however, the gap or space between the end of the electrode and the work piece is occupied by a solid or liquid substance which acts as a resistor to the flow of current and thereby produces heat, no arc can be present (R. 595, 601). As respects the process, it is here that the patentees

of the Jones patent in suit claim to have made their contribution. They substitute, so they say, for the arc a molten pool of "conductive melt * * * having appropriate electrical resistance properties" which, acting as a resistor "provides heating means" (R. 956, col. 1, ll. 28-35). This process, which according to their patent, avoids the arc of conventional methods, in fact does not exist, and the trial court so found (R. 915). This finding the reviewing court did not reject; it escaped the consequences of the finding only by an erroneous ruling as to the law, as shortly will be demonstrated. For the moment the point to bear in mind is that for the arc as the heating instrumentality the inventors claim to have found a novel substitute.

—Flux Protection Likewise Old.

While the metal is molten it must be kept from contact with the air (R. 735). To accomplish this the steel industry has universally used the method of blanketing the metal with a molten slag or flux (R. 447). The same means have been employed in electric arc welding.

—In Hand Welding.

In hand methods of arc welding, using a short length of steel electrode, the flux generally is placed on the electrode as a coating. The heat of the arc vaporizes and melts this flux, producing a protective medium for the arc zone and a resultant molten layer of flux floating on the molten weld metal (R. 116). Various combinations of ingredients, particularly silicates, have long been used for this purpose, and many patents have issued on such welding fluxes (R. 724-34, Defts. Exhs. 144, 145).

—In Automatic Welding.

In automatic methods of arc welding, where a continuous electrode, usually fed from a reel, is used, instead of supplying the flux as a coating on the electrode it has been

found preferable to lay the flux along the seam to be welded, or, alternatively, to surround the arc with an inert gas. The now expired J. C. Lincoln Patent No. 1,589,017 taught both[2] (R. 961).

What Robinoff taught was an improvement consisting in the use of a deep layer of flux under which the welding operation takes place. In this process the flux is laid on the seam in a deep layer, or is fed onto it ahead of the arc so as to submerge the arc in the compound. This is shown in the photograph on the facing page, Plaintiff's Exhibit 188AA, taken during the demonstration of the Lincoln-weld process at the Graver plant. It illustrates the teaching of Robinoff[3] under which both Lincoln and Linde were licensed.

These methods of protecting the weld metal, using a flux of some kind, or an inert gas, or a combination of both, are old. They have had world-wide application for many years. At least a half million tons of coated welding electrodes are produced annually. They have been made in quantity for more than 20 years in all parts of the world (R. 442-3).

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[2] Lincoln in his patent claimed (R. 966-7):

"1. The method of arc-welding, which consists in surrounding the molten metal with an inert medium during the welding operation."

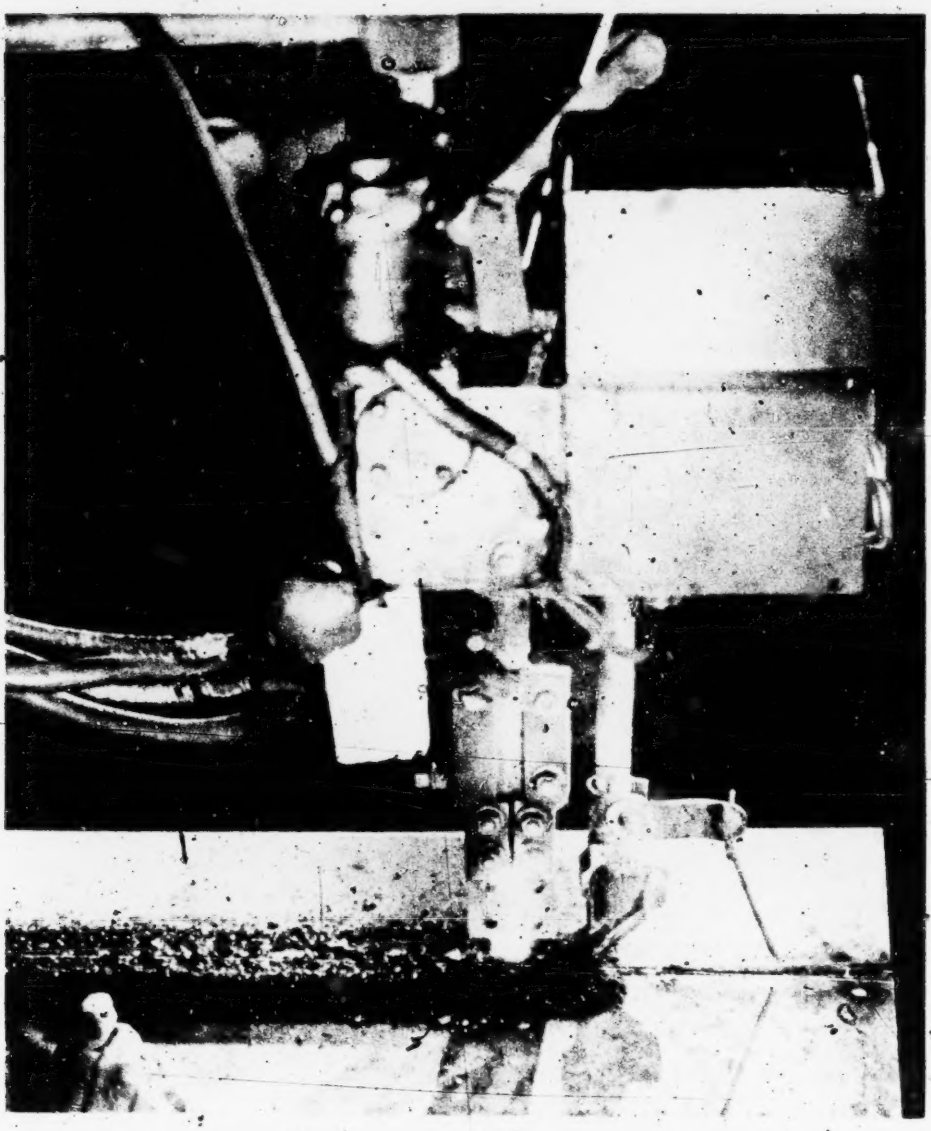
"15. The method of welding, which consists in enveloping the heating flame in an inert medium and maintaining the molten metal producing the welded seam beneath an inert gas and a slag covering during the welding operation, substantially as set forth."

[3] Robinoff claimed (R. 977):

"8. In a method of seam welding the steps of first forming a groove along the seam to be welded, then depositing a body of flux in said groove, and then moving a metal electrode along said groove and drawing an arc causing said flux to melt and melting said electrode so as to deposit the molten metal from said electrode through said melted flux."

DEMONSTRATION OF LINCOLNWELD PROCESS.

(Pltf. Exh. 188AA.)



Note that the metal electrode feeds from the top; flux feeds down from the box onto the seam, ahead of the arc, as it traverses the seam from left to right, leaving a blanket of flux over the welded portion of the seam to the left of the arc.

In the Lincoln weld process, and in every other, including that practiced by Linde, the same methods of protecting the weld metal have at all times been used. The point is that anything which will keep the air from the molten weld metal, and not contaminate the metal by introducing unwanted elements, will serve. Thus, the only differences which can occur in applying these methods of protecting the weld metal are those which arise from differences in the flux used.

Robinoff, long prior to the patent in suit, utilized an unpatented flux consisting of 80% clay (R. 507) mainly aluminum silicate (R. 310); Lincoln utilized manganese silicate taught by the prior Miller patent;[1] Jones claimed the alkaline earth metal silicates,[2] but has now been given both Robinoff's unpatented aluminum silicate and Miller's manganese silicate.

At the outset what the inventors of the patent in suit sought was a new and better flux. What it led to will next be pointed out.

Patent in Suit.

The inventors had no other aim than to produce a better flux for use with the old and well-known Robinoff method (R. 912). They tried many combinations of silicates and finally compounded one consisting of calcium and magnesium silicates in specific proportions, to which was added a small amount of calcium fluoride (R. 39). This so-called Unionmelt 20 flux containing "a major proportion of calcium silicate" is what respondent has used in attaining its "extensive commercial success" (R. 925).

[1] Miller claimed (R. 971):

> "The process of welding ferrous metals which comprises fusing the metal and depositing the same under a molten slag containing *manganese silicate* . . ."

[2] These are "calcium, magnesium, strontium and barium" Finding 11, R. 925

—Process Claims of Patent in Suit.

In ignorance of the teaching of Robinoff patent, No. 1,782,316, on submerged arc welding (R. 77), as well as the prior art use of fluxes comprised of silicates (R. 60), the inventors applied for a patent on "submerged arc welding" and on all salts and silicates as fluxes (R. 71-2, 90, 417, 802, 909, original application, Pltf. Exh. 125).

The application made to the Patent Office claimed the arc as the heating instrumentality. Thus, in original claim 16 what the patentees sought to patent was (R. 75):

> "A method of electric *arc* welding in the presence of a flux which consists in substantially *enclosing the arc in a flux* which has been rendered chemically inactive."[6]

The invention, it was asserted (R. 71), "relates to a method of electric arc welding in deep flux * * *." It was called "a new method designated as *submerged arc* electric welding" (R. 71) and in all but two out of 21 claims the "arc" or "electric arc" was referred to (R. 72).

The Patent Office thereupon cited the prior Robinoff patent and others (R. 75). At that stage respondent's parent corporation bought the patent application (R. 77). Its house patent solicitors took over the further prosecution of the application (R. 78). The Robinoff patent, which admittedly involved the use of the submerged arc, having been cited, a second and then a third substitute application were filed (R. 71, 78, 82, 84). The initial application, written by one of the inventors, was, he said (R. 30), "edited and changed" in the later applications. "I was responsible for the first application and the modifications are from our patent counsel" (R. 30), said Kennedy, one of the inventors. In the "modifications" the electric arc, which, until Robinoff was cited, had been claimed as the heating medium, became a "conductive melt" (R. 79, 835).

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[6] Emphasis supplied throughout.

The Patent Office was assured in the second application (R. 83):

> "We have discovered a novel process of welding which resembles the arc process in many ways but which is essentially different from the arc process **and uses no arc.** * * * in our process the resistance is provided not by a body of ionized gas but by a conductive melt."

Later this was amended to further disavow the arc by saying the process does not use "an arc of the usual type" (R. 130). Thereafter a *third* and successful application was filed in which the Patent Office was told (R. 85):

> "the present invention does *not involve a gas conducted arc*, thereby distinguishing radically from all prior fusion-deposition electric welding processes."

The claim then was—as asserted in one form or another in every one of the 17 process claims of the patent as it ultimately issued—that the process was "entirely different from arc welding" in that the current is carried by a "conductive melt," which was asserted to be "the principal feature of our process." "We have discovered," the patent as issued specified (R. 956):

> "a novel process for electric welding wherein the necessary heat is generated by the passage of a heavy electric current * * * by and through a *conductive melt* or welding composition having appropriate electrical resistance properties."

As the trial court observed (R. 913), "the idea of a radically different scientific principle came not from the inventors, but from plaintiff's patent solicitors."

At the same time the claims to an arc sheathed in a flux were cancelled and abandoned (R. 835) and the electric arc was denounced. It was asserted that (R. 958):

> "The heat for melting the electrode is evidently developed in the conductive melt itself."

and in one form or another in the first four process claims the process was described as one (R. 958):

> "without the formation of any substantial gas-conducted electric arc."

The initial claims to an arc sheathed in flux having been abandoned and cancelled upon the appearance of Robinoff, the patent issued. The invention so described in the grant would obviously appear to be novel. The difficulty is that there is no such arcless method in actual fact. The trial court held, "the evidence is persuasive that no such basic difference in phenomena is present in the Jones, et al method" (R. 908); it is an invention "**which does not in point of fact exist**" (R. 915).

Robinoff compared with Jones may be observed on the opposite page, Robinoff in the upper diagram (Defts. Exh. 108, R. 901) and Jones in the lower (Defts. Exh. 141, R. 906). While the patent in suit does not carry a diagram, the one used to illustrate Jones is taken from a subsequent patent (R. 979) issued to him in which he diagrammatically illustrated the process claimed in the patent in suit (R. 906).

Where Robinoff shows the arc at the lower tip of the electrode, Jones, in the process claimed but found not to exist, asserts he has his pool of "conductive melt." This, according to his claims, found by the trial court to be without support in the evidence (R. 908), is "a fused nonmetallic material which acts as a high resistance conductor" (R. 958, Claim 3) and this supplies the heat to make the weld.

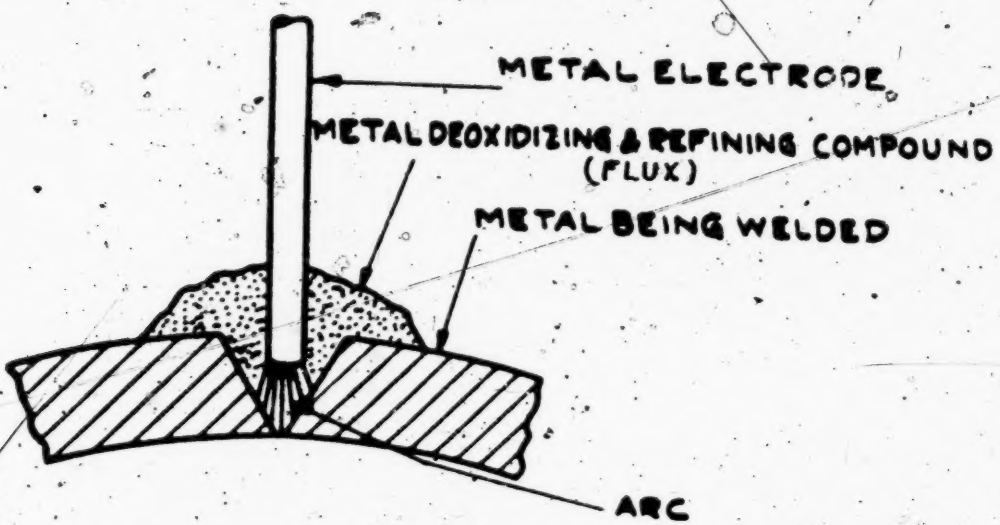
According to Jones (Defts. Exh. 141, R. 906):

> "The flow of current between the electrode and the work heats a region of the welding composition * * * so that it fuses and becomes a high resistance conductive path, and **this region of fused or liquid material supplies heat** to fuse the end of the electrode * * * and the edges of the plates * * *."

According to the trial court, this (R. 915):

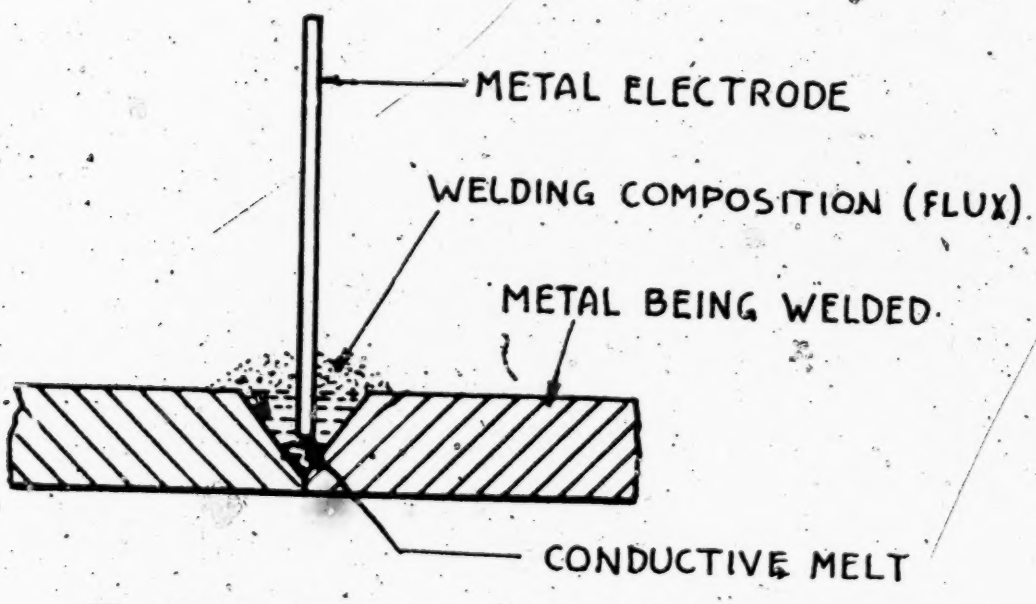
> "is to stake out a process or means of welding which does not in point of fact exist * * *."

ROBINOFF



Note electrode submerged in deep layer of flux in V formed by plates to be welded. The arc, at the tip of the electrode, generates the welding heat. (Defts. Exh. 108, R. 901.)

JONES



Where Robinoff shows the arc, Jones substitutes the "conductive melt" phenomenon which (R. 914) "came not from the inventors, but from plaintiff's patent solicitors." Said the court (R. 908) "The evidence is persuasive that no such basic difference in phenomena is present in the Jones, et al method." (Defts. Exh. 141, R. 906.)

Accordingly, the trial court, grouping the process claims in three classes, found them all invalid. Thus:

1. Process claims 5, 6, and 11 through 17, resting upon the arcless "conductive melt" method, the trial court held invalid because they described a process existing only in the mind of patent counsel (R. 913). The Circuit Court of Appeals reversed. In its view, the inventors not only "did not know" whether the sheathed arc, asserted on the first application and cancelled in the later applications, was present or not, but "they carefully avoided any commitment on that subject" (R. 1,000). Thus, a patent is sustained upon a claim for a method which the inventors have successfully avoided disclosing. The effect is to put in jeopardy anyone practicing submerged arc welding even under a process which indisputably involves the arc phenomenon which now is public property.

2. Certain of the process claims (i.e., claims 1, 3, 4, 7, 8, 9) the trial court found too broad and indefinite because they make no reference to the chemical constituents of the welding composition (R. 915, 925). The Circuit Court of Appeals, ignoring the trial court's determination that (R. 915) "the welding composition discovered by the inventors is the heart of the invention," reversed. It said that finding 7 "that the electric arc present * * * is sheathed by a mantle of molten welding composition," made by the trial court, "correctly described the alleged novel process without in any way referring to any chemical composition." (R. 999). Thus, the sheathed arc, cancelled and abandoned upon the first application, has been written back into the patent grant. The effect is to withdraw from the public domain the expired Lincoln patent and the expired Robinoff patent on submerged arc weld-

ing and deliver them to respondent Linde. Until the expiration of Robinoff, Linde, as was Lincoln, was licensed under the Robinoff patent. That patent, under which Linde once paid royalties, now having expired, is by force of the decision below re-granted to Linde.

3. Process claim 2 the trial court held invalid as claiming compounds found inoperative (R. 925). The Circuit Court of Appeals reversed. It narrowed the claim to metallic silicates and then narrowed the metallic silicates to nine, which it erroneously assumed had been found operative.

—Flux Claims of Patent.

The discovery of the patentees lies in compositions defined in claims not designated as infringed.[7]

Of those in issue, sustained by the trial court, and found infringed, claims 18, 20, 22 and 23 call for a composition (R. 960):

> "containing a major proportion of alkaline earth metal silicate * * *."

The Lincoln flux is "composed principally of manganese silicate" (R. 919, 920). This is not an alkaline earth metal and the trial court so found (R. 925). Therefore, as the trial court held (R. 920):

> "it does not literally infringe * * *."

However, the trial court condemned it as an equivalent "in welding operation" because, although not mentioned in the claims, the inventors in the specification of the patent summarized their record of experiments, saying (R. 956):

[7] What they discovered were fluxes comprised of calcium silicate and of magnesium silicate, which are alkaline earth metal silicates. By these they produced improved results in the use of the old Robinoff process (R. 912). These fluxes they defined in process claim 10 and composition claims 19, 21, 25, 28, 29 (R. 959-60). Admittedly these claims are not infringed (R. 17).

"We have used calcium silicate and silicates of sodium, barium, iron, manganese, cobalt, magnesium, nickel and aluminum both in binary and ternary combinations, in various proportions. [That is to say, they have used calcium silicate combined with one or two of the other silicates mentioned.] * * * While a number of these * * * are more or less efficacious * * * we prefer to use silicates of the alkaline earth metals, such as calcium silicate, and we also prefer to add to these silicates minor proportions of alumina * * *."

Thus, by a process of expanding the claims confined to alkaline earth metals—by incorporating therein the reportorial comments of the inventors as to other elements found "more or less efficacious"—the court has re-granted to respondent Linde the now expired Miller Patent 1,754,566, which covers the manganese silicate flux made by Lincoln, and has expanded the grant to cover the prior long-used unpatented Robinoff aluminum silicate flux.

Moreover, some of the nine silicates mentioned in the specification, which now are to be read into the patent grant as equivalents, are inoperable. They are "more or less efficacious," the inventors said. They advised the Patent Office that at least one, iron silicate, is unsatisfactory (Second Application, Pltf. Exh. 126). While the patent itself limits the amount of aluminum silicate to a *minor* proportion (R. 956) the court has rewritten this to call for "a *major* proportion."

The inventors' experiments demonstrated that others likewise of the nine specified silicates were unsatisfactory (Defts. Exh. 88). They were the compounds found "less efficacious." Manganese silicate, used by Lincoln, the patent says "may be added in moderate amounts" (R. 956, col. 2, l. 29). It clearly was not to be used in the "major proportion" now authorized by the court's revision of the patent grant.

All these are swept into the enlarged Jones, even though they admittedly are not the alkaline earth metals on which the patent issued.

Two others, claims 24 and 26, the trial court held invalid (R. 925). They claimed a monopoly for flux purposes on all silicates generally, many of which the trial court found "are inoperative." (R. 926). The Circuit Court of Appeals, however, reversed. Having for other purposes turned to the reportorial notes in the preamble to expand the patent grant, it, for the purpose of upholding the present claims, narrowed them to the "nine metallic silicates" and then compounded its error by erroneously adding "which had been proved operative." (R. 1,001). They had not (Defts. Exh. 88). As has been pointed out, they confessedly were only "more or less efficacious" and some were wholly unsatisfactory (Second Application, Pltf. Exh. 126).

Composition claim 27 for a flux "conductive when molten" the trial court held invalid as depending upon the nonexistent arcless conductive melt method (R. 925). The Circuit Court of Appeals reversed.

Misuse of Patent.

Respondent has exploited the patent in suit by means of an elaborate system of licenses and rod purchase contracts. From its licensees, up to the time the record closed, Linde had collected more than $6,000,000 in royalties (R. 395), part of which was, until the Robinoff submerged arc patent expired, paid to the owners of the Robinoff patent (R. 419) under which both Linde and Lincoln were licensees.

Admittedly in 10% of the cases where licensees contracted to buy their "entire requirements" of unpatented weld rod from Linde, both the license contract and the rod purchase contract bore the same date (R. 20, 400-7, 412, 420-1). The trial court refused to find in this an unlawful extension of the patent monopoly (R. 927) and the Circuit Court of Appeals affirmed (R. 1,003). The question is whether, by the device of causing such contracts to be separately executed, the transactions may be deemed free of the vice of unlawful extension of the patent monopoly.

QUESTIONS PRESENTED.

The questions presented are:

1. Whether process claims 1 through 9 and 11 through 17 of the Jones patent, No. 2,043,960, are valid.
2. Whether composition claims 18, 20, 22, 23, 24, 26, and 27 of Jones patent No. 2,043,960, are valid, and, if so, whether claim 18, 20, 22, or 23 is infringed.
3. Whether a claim, abandoned and cancelled, may be read back into a patent grant.
4. Whether a claim which embraces a process, found not to exist in fact, may be sustained.
5. Whether a process claim, the sole novelty of which rests in the composition or flux, is too broadly stated where it does not specify its chemical components.
6. Whether a claim may be expanded by reference to the specifications.
7. Whether an unambiguous composition claim may be enlarged by incorporating therein, upon the doctrine of equivalents, or otherwise, compounds mentioned in the specifications as being more or less efficacious, some of which are inoperative and some of which are covered by prior patents.
8. Whether the claims in suit are invalidly stated in terms of function or result, or are defective under 35 U. S. C. 33 for failure to "particularly point out and distinctly claim" the invention.
9. Whether the process or composition claims are anticipated.
10. Whether the trial court's unreversed findings of fact have been improperly displaced by erroneous conclusions of law.
11. Whether a patent licensor, contracting to sell unpatented supplies for use in a licensed process, unlawfully extends the patent monopoly, where the

license agreement and contract for purchase of supplies, although separately executed, in 10% of such cases bear the same date.

REASONS RELIED ON FOR ALLOWANCE OF WRITS.

The reasons relied on for the issuance of the writs prayed for are:

1. The possibility of conflict between circuits is remote despite the doubtful validity of the patent. Under the process claims of this patent, which have been held invalid by the trial court, a toll in excess of $6,000,000 has been levied upon all industry. If review now is refused and the patent erroneously sustained, this levy will continue for the life of the patent. The only other suit involving the patent was one brought, ten days after issuance, against a user in the United States District Court in California and settled by consent decree, sustaining the patent. Petitioner Lincoln is presently respondent's sole competitor in the field of submerged arc welding. Accordingly the possibility of further litigation to settle the validity of the patent is remote. This alone warrants review by this Court for the reasons pointed out in *Mackay Radio & Telegraph Co. v. Radio Corporation of America* (1939), 306 U. S. 86, 89; *Muncie Gear Works, Inc. v. Outboard, Marine & Manufacturing Co.* (1942), 315 U. S. 759, 765-6; *Exhibit Supply Co. v. Ace Patents Corporation* (1942), 315 U. S. 126, 128; *Schriber-Schroth Co. v. Cleveland Trust Co.* (1938), 305 U. S. 47, 50.

2. Important questions of patent law have been decided in a manner in conflict with the decisions of this Court. Thus:

(a) To sustain the process claims the court below restored to the patent grant the sheathed electric-arc claimed in the initial application as an essential ele

ment and then cancelled and abandoned. This does not accord with this Court's decisions in *Schriber-Schroth Co. v. Cleveland Trust Co.* (1940), 311 U. S. 211, 218, 220-2; *Altoona Publix Theatres Inc. v. American Tri-Ergon Corp.* (1935), 294 U. S. 477, 487, 492; *Sutter v. Robinson* (1886), 119 U. S. 530, 541.

(b) To expand unambiguous composition claims calling for alkaline earth metal silicates, the court below reached to the specifications. As this Court's cases since *White v. Dunbar* (1886), 119 U. S. 47, 51-2 and *McClain v. Ortmayer* (1891), 141 U. S. 419, 423-4 show, the claims measure the grant and, while they may be limited, they may not be enlarged by the specifications.

(c) The court below disregarded the rule that whatever infringes, if later, will anticipate if earlier. *Knapp v. Morss* (1893), 150 U. S. 221, 228. If the process claims can be interpreted to cover arc welding under deep flux, they are anticipated by Robinoff; if the composition claims can be interpreted to cover the manganese silicate flux petitioners use, they are anticipated by Miller.

(d) The court below in effect granted a patent upon a result. *Holland Furniture Company v. Perkins Glue Company* (1928), 277 U. S. 245, 256-8; *General Electric Co. v. Wabash Appliance Corp.* (1938), 304 U. S. 364, 368, 371, 374. The process claims as interpreted by the court below would bar anyone from using in the old Robinoff process a flux, whether heretofore known or not, which performs the function of sheathing the arc in a mantle of molten flux. This would seem to be in clear defiance of *Halliburton Oil Well Cementing Co. v. Walker* (1945), 329 U. S. 1, 9-10, 12.

3. **Important questions not heretofore settled by decision of this Court are raised.** They deal with the particularity of claim required by the statute and with unlawful extension of the patent monopoly. They arise out of the following circumstances:

(a) The statute, Sec. 4888 R. S., 35 U. S. C. 33, requires, and this Court has held, *Universal Oil Products Co. v. Globe Oil & Refining Co.* (1944), 322 U. S. 471, 484-5, that the claims must particularly point out and distinctly claim the invention. Is this statutory requirement satisfied:

(i) In a process claim the sole novelty of which rests in the composition used therewith unless the components thereof are identified?

(ii) In composition claims drawn broadly to silicates or metallic silicates, by referring litigants and the public to the patent specifications to find by further experimentation the specific compounds which are operative?

(b) The judgments below open the door to tying agreements, which, if embraced in a single contract would be invalid, by making precisely the same device lawful provided only the license agreement and the contract for unpatented supplies are set forth in separate agreements simultaneously executed. Are not such transparent arrangements *per se* unlawful?

4. **The court below has departed from the accepted course of judicial proceedings** by treating findings of fact, left unreversed and which could not be reversed on the factual showing of the record as though they were conclusions of law, and treating conclusions of law (such as the interpretation of the patent) as though they were findings of fact which "we may not disturb." By this process it reached a result otherwise unreachable.

CONCLUSION.

Under the judgments in review, dominion of large segments of a useful art important to all industry—much of which by law is public property—is handed over to respondent. Before any such conveyance is sealed this Court should examine the justice of the grant.

The writs should issue.

Respectfully submitted,

GRAVER TANK & MFG. CO. INC.,
THE LINCOLN ELECTRIC COMPANY,
GRAVER TANK & MFG. CORPORATION,
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Attorneys for Petitioners.

July 27, 1948.

In the Supreme Court of the United States

OCTOBER TERM, 1948.

Nos. _____ and _____

GRAVER TANK & MFG. CO., INC.,
THE LINCOLN ELECTRIC COMPANY,
GRAVER TANK & MFG. CORPORATION,
Petitioners,

v.

THE LINDE AIR PRODUCTS COMPANY,
Respondent.

BRIEF IN SUPPORT OF PETITION FOR WRITS OF CERTIORARI.

The writs should issue to restore to the public domain the field of electric arc welding which the Circuit Court of Appeals has subjected to the monopoly of Jones patent No. 2,043,960. The Court should say whether, under the patent law:

1. Process claims, abandoned in order to distinguish from the prior art, may be restored to the patent grant in order to sustain a process claimed and patented but found not to exist in fact.
2. Composition claims may be expanded by resort to the specifications and sustained upon a doctrine of equivalents so broad as to write into the grant compounds, some of which are inoperable and some of which are the subject of prior now-expired patents.

OPINIONS BELOW.

The opinion of the District Court is reported in 75 U. S. P. Q. 230. It appears in the record at R. 907. The findings are at R. 923.

The opinion of the Circuit Court of Appeals for the Seventh Circuit is reported in 167 F. (2d) 531. The opinion appears in the record at R. 990, and the separate judgments entered upon the separate appeals appear at R. 1,004-5. Petition for rehearing (R. 1,006) was denied without opinion on May 14, 1948 (R. 1,034).

JURISDICTION.

As noted in the petition, jurisdiction is invoked under Section 240(a) of the Judicial Code, 28 U. S. C. 347(a).

STATEMENT OF FACTS.

The essential facts are set forth in the petition.

SPECIFICATION OF ERRORS TO BE URGED.

The Circuit Court of Appeals erred:

1. In holding valid process claims 1 through 9 and 11 through 17 of Jones patent No. 2,043,960 and in reversing the judgment of the District Court with respect thereto.
2. In holding valid composition claims 24, 26 and 27 of said patent and in reversing the judgment of the District Court with respect thereto.
3. In holding valid and infringed composition claims 18, 20, 22 and 23 of said patent and in affirming the judgment of the District Court with respect thereto.
4. In holding valid claims to a process found not to exist in fact.
5. In refusing to hold the claims of said patent invalid under 35 U. S. C. 33 for failure to "particularly point out and distinctly claim" the invention.

6. In reading into the claims of said patent sheathed are claims cancelled and abandoned by the patentees in Patent Office proceedings.

7. In holding valid, claims to a process, the sole novelty of which is found to reside in the composition used therewith, which do not describe the constituents of the composition.

8. In expanding the claims of said patent to embrace the specifications.

9. In interpreting said patent to hold manganese silicate an equivalent of alkaline earth metal silicates claimed in said patent.

10. In holding valid, claims of said patent interpreted to embrace inoperable compounds.

11. In refusing to hold the claims of said patent anticipated.

12. In treating findings of fact as conclusions of law and treating conclusions of law as findings of fact.

13. In refusing to hold said patent has been misused in violation of section 3 of the Clayton Act, 15 U. S. C. 14.

ARGUMENT.

REASONS RELIED ON FOR ALLOWANCE, OF WRITS.

This Court should grant the writs prayed for because:

I. POSSIBILITY OF CONFLICT REMOTE.

The trial court has held the patent in large part invalid. The Circuit Court of Appeals has reversed. Although two courts thus have disagreed as to the validity of substantial portions of a patent, at best of doubtful validity, the possibility of further litigation and conflict of decision between the circuits is remote.

Respondent, having established color of validity for its patent by the device of a consent decree entered in an action brought against a user ten days after the issuance of the patent (R. 393-4, 413, Pltf. Exh. 212), and having thereafter by its licensing system disabled 750 users of its process from contesting the patent (R. 395) Lincoln remains respondent's sole competitor in the field of submerged arc welding. The judgment here, therefore, is likely to foreclose all further inquiry into the validity of the patent.

These circumstances properly call for the issuance of the writs. The Court so pointed out in:

Mackay Radio & Telegraph Co. v. Radio Corporation of America (1939), 306 U. S. 86, 89;

Muncie Gear Works, Inc. v. Outboard, Marine & Manufacturing Co. (1942), 315 U. S. 759, 765-6;

Exhibit Supply Co. v. Ace Patents Corporation (1942), 315 U. S. 126, 128;

Schriber-Schroth Co. v. Cleveland Trust Co. (1938), 305 U. S. 47, 50.

Not only are the questions raised of large public importance and the patent doubtful, but, as in *Mackay Radio & Telegraph Co. v. Radio Corporation of America* (1939),

306 U. S. 86, the only competitor left to make the challenge is Lincoln. There the Court (p. 89):

> "granted certiorari * * * because of the nature and importance of the case, on a petition which urged as grounds for its allowance that validity and infringement * * * were in doubt and that, as petitioner is the only competitor of respondent * * * further litigation, resulting in conflict of decision among circuits, was improbable."

The writs should likewise issue here.

II. IMPORTANT PATENT QUESTIONS HAVE BEEN DECIDED CONTRARY TO THIS COURT'S DECISIONS.

The court below has applied principles of law which are in conflict with this Court's cases. Extended to other patent causes, the mischief of the principles given sanction by the court below will be great.

1. Court Has Restored to Patent Abandoned Sheathed Arc Claim.

As will be recalled, in order to obtain the issuance of the patent, claims to "electric *arc*" welding were cancelled and abandoned.

Initially the inventors laid claim to a process of "electric arc welding under deep flux" (R. 71-2, 75, 81-2, 99, 417, 502). As the trial court noted, the application for the patent was "replete with references to the presence and use of an electric arc" (R. 909). The use of the electric arc as the heating medium, however, was old in the art (R. 440). Robinoff, for example, had claimed it and already had a patent on welding with the use of the arc under deep flux (R. 975), which, along with others, was cited by the Patent Office (R. 75, 81).

It became necessary, therefore, if a patent were to issue, to distinguish from the prior art and to establish

as the heating medium a phenomenon other than the arc. In place of the arc phenomenon, where the current jumps the gap through an ionized gaseous or vaporous medium—the application in the meantime having been sold to respondent's parent corporation—its patent solicitors substituted a welding composition or "conductive melt" acting as a resistor to generate the heat. "We have discovered," it was said in the second application (R. 83):

> "a novel process of welding which resembles the arc process in many ways but which is essentially different from all arc processes and *uses no arc.* * * * in our process the resistance is provided, not by a body of ionized gas, but by a conductive melt."[1]

Thus, to meet the patent examiner's references to the prior art, original claim 16 of the first application which claimed (R. 75):

> "A method of electric arc welding in the presence of a flux which consists in substantially enclosing the arc in a flux which has been rendered chemically inactive,"

and all claims to "submerged arc" and "enclosed arc" welding, were cancelled and abandoned. In lieu thereof, the invention, described and ultimately allowed in the patent which issued upon the third application, was for a welding process in which the heat was (R. 958):

> "developed in the conductive melt itself."[2]

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[1] Emphasis supplied throughout the brief.

[2] This, in one form or another, was asserted in all of the 17 process claims of the patent as it issued (R. 958-60). Thus, in claim 1 of the issued patent, the patentees laid claim to (R. 958):

> "The *process of* electric welding which comprises the steps of juxtaposing an electrode and a conductive member on which metal is to be deposited, *establishing* between said member and said electrode **a conductive path of a high resistance melt** of chemically stable fusable material having at welding temperatures substantially the fluidity and elec-

(Continued on following page)

So completely did the patentees abandon the "arc" that while claim 24 of the patent as issued originally called for "A fluxing material for electric *arc* welding," by their very last amendment of the third application they cancelled the word "arc" therefrom (Pltf. Exh. 127).

The patent as issued was thus distinguishable from the arc process. The gap between the end of the electrode and the workpiece, bridged in the conventional process by the arc conducted by an ionized gaseous or vaporous medium, became instead (R. 958) "a conductive path of a high-resistance melt" with the heat "developed in the conductive melt itself." (R. 958).

The trial court, however, found that the process so described and claimed "*does* **not** *in point of fact exist*" (R. 915). In the invention as practiced, as distinguished from the process described and claimed in the patent, the arc is the heating instrumentality (R. 908-12). "It is still an arc" (R. 910) but encased "in a different medium" (R. 912) in that "the vaporized area of ionization constituting the arc zone is entirely blanketed and shielded by a mantle of fused welding composition." (R. 911). Accordingly, having examined the commercial practice of the claimed invention, the trial court found (Finding 7, R. 924):

> "*the electric arc present* between the electrode and base metal *is sheathed by a mantle of molten welding composition* and * * * the conductive arc area is composed predominantly of vaporous welding composition."

(Continued from preceding page)

trical conductivity of a fusable silicate, and substantially free from substances capable of evolving large amounts of gases during welding; *passing through said melt an electric current of sufficient strength to maintain its conductivity*, progressively melt the required amount of metal, and cause the resulting molten metal to coalesce with said member, *and maintaining said melt in contact with said electrode throughout the welding operation to avoid the formation of a substantial air-conducted electric arc* between the electrode and the said conductive member."

Upon this the Circuit Court of Appeals seized (R. 998) to sustain the patent. The trouble is: **this is the very claim which the patentees abandoned and cancelled.** It is original claim 16, above quoted. When the applicants wrote out of the patent that claim and all claims to "submerged arc" and "sheathed arc" welding, they put forever outside the scope of this patent the claim to a sheathed arc which now has been read back into the patent.

A claim once abandoned cannot so be revived. That is what this Court's cases hold. The claim, having been abandoned in order to obtain the patent, *Sutter v. Robinson* (1886), 119 U. S. 530, the patentee (p. 541):

> "is not at liberty now to insist upon a construction of his patent *which will include what he was expressly required to abandon* and disavow as a condition of the grant."

The Court applied the same rule in *Schriber-Schroth Co. v. Cleveland Trust Co.* (1940), 311 U. S. 211. The Court said (p. 218):

> "Where the patentee in the course of his application in the patent office has, by amendment, cancelled or surrendered claims, those which are allowed are to be read in the light of those abandoned and an abandoned claim *cannot* be revived and restored to the patent by reading it by construction into the claims which are allowed."

What this Court says may not be done, the Circuit Court of Appeals has done. It has reversed and restored to the patent the very claims which were cancelled and abandoned in order to distinguish from prior art. The result is that the prior and expired Robinoff patent (and the expired Lincoln as well) is written back into this patent thus reissued to respondent Linde. Linde, *instead of pairing a conduit* on Robinoff's submerged-arc process, as it did for years in licensing the patent in suit (R. 419, 426)

becomes the collector of royalties under that expired patent now written into its own.

Thus, that which was public property becomes that of respondent Linde.

2. Court Has Read Specifications as Claims to Enlarge Patent Grant.

Four composition claims, 18, 20, 22, 23, lay claim to a flux (R. 960):

"containing a major proportion of alkaline earth metal silicate . . . ."

These claims have been held valid and infringed by the Lincolnweld manganese silicate flux, which admittedly is not an alkaline earth metal silicate (Finding 12, R. 925). Although the Lincolnweld flux, as stated by the trial court (R. 920) "*does not literally infringe*" it is condemned as an equivalent.

Why?

Because the inventors, not in the claims, but in the specifications, stated that manganese silicate was one of the nine they had found "more or less efficacious" (R. 956). Having found manganese and the other eight only "more or less efficacious," they not only declared (R. 956):

"we prefer to use silicates of the alkaline earth metals,"

thus **excluding** manganese which is not an alkaline earth metal, but, coming to state their claims, explicitly and unambiguously *limited* the claims of the invention to fluxes containing (R. 960):

"a major proportion of alkaline earth metal silicate . . . ."

The manganese silicate of the Lincolnweld flux was thus put outside the scope of the patent claims. Indeed, it could not have been included therein because Miller patent

No. 1,754,566, already both claimed and taught the use of "manganese silicate" as a flux (R. 971).

—(a) Claims Measure Grant and May Not Be Enlarged by Resort to Specifications.

Obviously the patent could not issue upon manganese silicate as a flux. But, whether it could or not, the point is that, having expressly and unambiguously limited the claims to "alkaline earth metal silicates"[3]—of which manganese silicate is not one—respondent cannot now be heard to ask that manganese silicate be read back into the grant. It is the "*claims*, not the specifications," which measure the grant. *Milcor Steel Co. v. George A. Fuller Co.* (1942), 316 U. S. 143, 145, *Keystone Bridge Company v. Phoenix Iron Company* (1877), 95 U. S. 274, 278-9, *White v. Dunbar* (1886), 119 U. S. 47, 51-2. As the Court put it in *McClain v. Ortmayer* (1891), 141 U. S. 419, at page 423:

> "While the patentee may have been unfortunate in the language he has chosen to express his actual invention, and may have been entitled to a broader claim, we are not at liberty * * * to construe such claims to include more than their language fairly imports. Nothing is better settled in the law of patents than that the paten-

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[3] The District Court thought Miller did not anticipate the expanded alkaline earth metal silicate claims of the patent in suit because Miller did not teach prefused manganese silicate as the "preferred form of the invention." The District Court pointed out that the Miller patent reads, in part (R. 921):

> "Instead of preformed [that is, prefused] manganese silicate the coating may contain material adapted to react at the temperature of the metal-depositing operation *to produce* manganese silicate. This is the preferred form of the invention *as it permits one operation to be dispensed with.*"

Thus Miller demonstrably discloses the use of preformed manganese silicate and only recommends the mixture of proper ingredients to dispense with one operation. Manifestly, the disclosure of a patent is not limited to the preferences stated therein. But if it is, then Jones likewise must be limited to, and not expanded beyond, the alkaline earth metal silicates which the patentee there says "we prefer to use * * *."

[illegible]may claim the whole or only a part of his invention, and that if he only describes and claims a part, *he cannot be supposed to have abandoned the residue to the public.* The object " " " is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and while the specification may be referred to to limit the claim, it can never be made available to expand it."

But that is precisely what the court below has done. It has reached to the specification to enlarge the grant.

The result is that the Miller patent on manganese silicate flux, now expired, is swept into the orbit of Jones. And so is the unpatented Robinoff flux because it is primarily aluminum silicate, one of the nine along with manganese silicate, which the patentees of Jones reported "more or less efficacious." If manganese silicate may be culled from the specification and read into the grant, so must Robinoff's aluminum silicate. **Thus, these two fluxes, which by law are public property, are made to pay tribute to Linde.**

But there is in the Seventh Circuit's reading of the patent a deeper vice.

—(b) Claims So Enlarged Invalid as Embracing Inoperable Compounds.

Had the patentees laid claim to manganese silicate as a flux (or to Robinoff's aluminum silicate which stands on the same footing), such claims obviously would have had to be disallowed.

Now note what the court below has done. These manganese silicate and aluminum silicate fluxes, which could not have been allowed if affirmatively claimed, the court has written into the patent claims. This, the court says it has done on the doctrine of equivalents (R. 919-20). What the patentees could not directly claim, the court has vested in them indirectly.

The doctrine of equivalents has been misapplied. Carried to its inescapable conclusion, the court's doctrine will sweep into the patent monopoly, just as it has here, much that is public property.

Whatever may be the proper scope of the rule of equivalents, it never should be permitted to convert a specification into a claim. Otherwise the scope of the patent of the future will differ much from that of the past. So profound would be the consequences of such a doctrine that no court should give it sanction. If the statute, 35 U. S. C. 33, which requires the inventor to "particularly point out and distinctly *claim*" his invention is to be changed, that is the proper work of Congress.

Additionally, if the specifications enlarge the claims, they become part thereof, and are subject to the same statutory tests of validity. The sole basis for the court's decision is the statement in the specification that (R. 920):

> "We have used calcium silicate and silicates of sodium, barium, iron, manganese, cobalt, magnesium, nickel and aluminum, both in binary and ternary combinations * * *"

Any of these nine silicates, including the manganese silicate of the Lincolnweld flux, under the court's decision, may be read in place of the (R. 960):

"major proportion of an alkaline earth metal silicate"

called for in the claims. But:

> Iron silicate, one of the nine, will not produce a satisfactory weld (R. 61). The inventors so advised the Patent Office (p. 4, Second Application, Pltf. Exh. 126). Their notes (Defts. Exh. 88, Test No. 299) show it to be "perfectly no good."
>
> Magnesium silicate, likewise one of the nine, the inventors' notes show produced welds "lousy with holes." (Defts. Exh. 88, Test No. 349).
>
> Sodium silicate, also one of the nine, the patentees' notes show (Defts. Exh. 88, Test No. 340) "gives round holes."

Aluminum silicate, another of the nine, the patent itself declares must *not* be used in the "major proportion" called for by the court's interpretation. Indeed, the same paragraph of the specification relied upon by the court below calls for only "*minor* proportions of alumina" (R. 956), and, in claims 26 through 29, the alumina content is expressly limited to not more than 8% (R. 960).

Manganese silicate, which Lincoln used, the patent itself says, "may be added in *moderate* amounts" (R. 956, col. 2, l. 29). This "moderate" amount the court's reading transposes into "a major proportion."

Surely a doctrine which (1) has the effect of sweeping into the patent grant compositions covered by prior patent, (2) calls for the use of silicates which are not operable, and (3) can be applied only by doing violence to express claims, cannot stand.

3. Court Has Read Claims so as to Cover Prior Art and Grant Patent on Result.

The result of the reading put upon the patent by the Circuit Court of Appeals is either to destroy the patent or to deny principles this Court has declared. Both cannot stand. Thus:

—(a) Interpretation Put on Claims Broadens Them into Invalidity.

As early as *Knapp v. Morss* (1893), 150 U. S. 221, this Court considered "well established" the rule that (p. 228) "that which infringes, if later, would anticipate if earlier."

Applied to this case, that doctrine condemns the interpretation the Circuit Court of Appeals has put upon the patent. As has been seen, the process claims have been interpreted to cover arc welding under deep flux. But this, except for the composition of the flux, is precisely what Robinoff taught.

Similarly, the composition claims have been interpreted to cover manganese silicate, which is what Miller taught. But, for using Miller the petitioners have been held to infringe.

Manifestly, if *Knapp v. Morss* still is law, the claims of this patent cannot be read, as the court below has read them, to embrace prior art, nor can petitioners justly be labeled as infringers for using what is public property.

—(b) Effect of Court's Reading Is to Grant Patent upon Result.

The effect of restoring to the process claims the sheathed arc, once abandoned, is to bestow a patent upon a result. The claims so redrawn make no disclosure of any means or mode of operation, whether new or not, to effect the sheathing of the arc. So drawn, the claims are to anything which sheathes or encases the arc, and by whatever means. This, as this Court's cases show, will not satisfy the statute:

Permutit Co. v. Graver Corporation (1931), 284 U. S. 52, 60;

Holland Furniture Company v. Perkins Glue Company (1928), 277 U. S. 245, 256-8;

General Electric Co. v. Wabash Appliance Corp. (1938), 304 U. S. 364, 368, 371, 374;

Halliburton Oil Well Cementing Co. v. Walker (1946), 329 U. S. 1, 9-10, 12.

As the Court pointed out in the *Permutit* case, 284 U. S. 52, at page 60:

> "The statute requires the patentee not only to explain the principle of his apparatus and to describe it * * * but also to inform the public during the life of the patent of the limits of the monopoly asserted * * *. The free bed [which there was in question] was neither described in the specification nor claimed in either Claim 1 or Claim 5."

So, in the present case, the Circuit Court of Appeals has read into the process claims the sheathed arc which is neither described in the specification nor defined in the claims. Indeed, the Circuit Court of Appeals expressly said, referring particularly to process claims 5, 6, and 11 through 17 (R. 1,000):

> "None of these nine claims refer in any manner to the presence or absence of an arc, either directly or by reasonable inference."

How then can the patent possibly be sustained as valid if the novelty of the process, as earlier stated by the Circuit Court of Appeals, is to be found in the circumstance (R. 998) "that the electric *arc* present between the electrode and base metal *is sheathed* by a mantle of molten welding composition * * *"?

Certainly a patent cannot stand where the inventors not only have not done what the statute, 35 U. S. C. 33, requires they do, "particularly point out and distinctly claim" their invention, but have, as the Circuit Court of Appeals said (R. 1,000), "carefully avoided any commitment on that subject."

III. IMPORTANT QUESTIONS, NOT HERETOFORE SETTLED, ARE RAISED.

Two types of questions arise. They relate to the question of particularity required by the statute, 35 U. S. C. 33, and to unlawful extension of the patent monopoly.

1. Particularity Required under Proper Reading of Statute Has Been Ignored.

The statute, 35 U. S. C. 33, requires that the applicant "particularly point out and distinctly claim" his invention. The proper reading of this statute arises here in two aspects which heretofore have not been squarely placed before this Court, namely:

—(a) Where Novelty of Process Claim Resides in Flux Must Constituents Be Identified?

The "heart of the invention," the trial court held, is "the welding composition discovered by the inventors" (R. 915). Otherwise the practice of the invention follows precisely that of the prior arc welding process of Robinoff (Finding 27, R. 927). The trial court found (R. 911):

> "The difference is not in the phenomena but in the element or elements constituting the 'ionized' area of the arc operation and surrounding it."

Pointing out that (R. 908) "The evidence is persuasive that no such basic difference in phenomena is present in the Jones, et al. method" as was urged by Linde to distinguish it from Robinoff, the court further found that (R. 911):

> "The distinctive characteristics * * * can be attributed only to the peculiar properties *of the welding composition* which is employed."

Accordingly, since the claims (R. 915) "make no reference in any manner to the identity of the composition," the trial court held them invalid under the statute, 35 U. S. C. 33.

The Circuit Court of Appeals reversed. It reversed on the ground that it is (R. 999):

> "unnecessary, in a process claim to refer in any way to the chemical constituents of the composition where, as here, they are fully set forth in the specification."

Thus arises the question: Where the sole novelty presented by the process of the patent resides in the use of a different welding composition in carrying out old procedural steps, is the statute satisfied where the composition so used is in no way identified in the patent claims?

This Court has never squarely been faced with that question.

The logic of this Court's cases, however, requires that such claims be stricken where the identity of the elements

which contribute the sole novelty of the invention is not disclosed. Otherwise the patent, in defiance of the statute and the cases, becomes merely a patent upon a result.

It will not do to say the composition is referred to in the specification. The reason is "He **cannot** go beyond what he has claimed and insist that his patent covers something not claimed, merely because it is to be found in the descriptive part of the specification." *Railroad Company v. Mellon* (1881), 104 U. S. 112, 118; *Milton Steel Co. v. George A. Fuller Co.* (1942), 316 U. S. 143, 145; *Marconi Wireless Telegraph Company of America v. United States* (1943), 320 U. S. 1, 23. Indeed, since "each claim must stand or fall, as itself sufficiently defining invention," as this Court held in *Altoona Publix Theatres, Inc. v. American Tri-Ergon Corp.* (1935), 294 U. S. 477, the claim cannot (p. 487) "be aided by reading into it parts * * * of other claims" let alone the specification.

Manifestly, if the trial court's reading of the statute is to be rejected, the claims will be invalid as patenting merely a result and as embracing within the scope of the patent anything which produces the same result.[4] In principle this is denounced by:

Halliburton Oil Well Cementing Co. v. Walker (1946), 329 U. S. 1, 9-10, 12;

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[4] Claim 3, for example, which the Circuit Court of Appeals held valid, reads as follows (R. 958):

"The method of electric welding by melting a metal electrode, depositing the metal so welded upon a metal work piece and coalescing said melted metal with adjacent fused metal of said workpiece, which method comprises supplying heat for said welding by passing an electric current from said electrode to said workpiece through *a fused nonmetallic material which acts as a high-resistance conductor* at welding temperatures and which does not evolve substantial amounts of gas when in contact with the melted weld metal, and maintaining said material in constant contact with said electrode and workpiece to avoid formation of a substantial air-conducted electric arc between the electrode and workpiece."

General Electric Co. v. Wabash Appliance Corp. (1938), 304 U. S. 364, 368, 374, 374;

Hartford-Empire Company v. Perkins Glass Company (1928), 277 U. S. 245, 256 8.

As this Court noted in the *Halliburton* case, 329 U. S. at page 12:

> "Just how many different devices there are of various kinds and characters which would serve * * * we do not know. * * * In this age of technological development there may be many other devices beyond our present information or indeed our imagination which will perform that function and yet fit these claims. And unless frightened from the course of experimentation by broad functional claims like these, inventive genius may evolve many more devices to accomplish the same purpose."

The reasons thus stated in *Halliburton* with respect to combination claims, should be applied with equal force to process claims. In the one as much as the other (p. 9) "the public and those affected by patents" need the protection of the statute. The Court should so declare.

—(b) Where Class Claimed, May Public Be Sent to Specification to Identify Usable Elements?

Certain of the claims, 2, 24, and 26, were struck down by the trial court (R. 918-9) because so broadly drawn as to include the whole class of "metallic silicates" and "silicates" of all kinds. The Circuit Court of Appeals reversed. It noted (R. 1,001):

> "The District Court held process claim 2 and composition claims 24 and 26 invalid on the ground that a number of silicates had been shown to be inoperative. [The finding was 'many silicates, even many metallic silicates, are inoperative * * *.' Finding 17, R. 926, 918.] The composition is described as a silicate in process claim 2, as a metallic silicate and calcium fluoride in composition claim 24, and as consisting

chiefly of silicates in composition, claim 26. It [the trial court] rejected plaintiff's [that is, Linde's] contention that 'silicates' and 'metallic silicates,' when read in the light of the specifications, meant the nine metallic silicates which had been proved operative."

As already has been pointed out (pp. 32-3, *supra*), they had *not* been proved operative. But, aside from this, can a claim so broadly stated, stand? May litigants and the public be referred to the specification to find the compounds which are to be used? May they so be referred where all of the class claimed is not operative?

The Circuit Court of Appeals, while asserting its allegiance to the Sixth Circuit's decision in *Aluminum Co. of America v. Thompson Products, Inc.* (6 C. C. A. 1941), 122 F. (2d) 796, which the trial court followed, has arrived at a conclusion in direct conflict with that case. In the *Aluminum Company* case, the patent covered both a method of making castings of aluminum-silicon alloy and a product resulting from the practice of the method. The trial court concluded that the absence of silicon limitations in the claims invalidated them. Touching the patentee's contention that the specifications indicated the silicon content, and the claims therefore should be read in the light of the specifications, the Sixth Circuit held that rule (p. 798):

> "limited to claims that are ambiguous and so require construction, and is in no event applicable where it appears to be clear that the inventor sought a broader monopoly than would seem to be justified by his invention as he has described it."

The court, therefore, refused to (p. 798) "interpolate into the defeated claims * * * a limitation upon the silicon content of the patented alloy not there expressed."

It should further be noted that, just as in the *Aluminum Company* case, the patent here in suit contains claims both to the process and composition which specifically define the constituents of the welding composition or flux.

Petitioners, however, are not and could not be charged with infringement of those claims.[5] It is, therefore, evident on the face of the patent that the broader claims asserted against petitioners were deliberately included and should be stricken. The court below is thus in direct conflict with the Sixth Circuit on this point.

2. Tying of Supplies to Patent Is Unlawful Although Effected by Separate Contracts.

Respondent Linde has misused its patent in violation of Section 3 of the Clayton Act, 15 U. S. C. 14.

The statute makes it unlawful to "make a sale or contract" relating to patented or unpatented materials:

> "on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the * * * commodities of a competitor"

where the effect may be to substantially lessen competition or tend to create a monopoly.

Immediately following the acquisition of the patent in suit, respondent began and has continued to exploit the patent by an elaborate system of licenses running to 750 users (R. 395). The licenses grant rights under the patent in suit and others.[6] Coupled with such licenses respondent

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[5] Process claim 10 and composition claims 19, 21, 25, 28, 29 are not charged as infringed (R. 17).

[6] The granting clause in respondent Linde's standard form of license in use at the time this action was brought says (Pltf. Exh. 215):

> "The Licensor * * * does hereby give and grant, a non-exclusive, non-assignable license under all welding process claims contained in the Unionmelt Patent Rights to use the Unionmelt welding process in all plants in the United States operated by the Licensee and also a concurrent non-exclusive, non-assignable license under all welding composition claims contained in the Unionmelt Patent Rights, to use in such plants, but not to make, Unionmelt covered by such composition claims."

Linde also regularly entered into contracts covering the licensee's entire requirements for unpatented metal electrodes used in the patented process (R. 400-7, 412, 420-1). Had the two been embraced in a single instrument, obligating the purchaser to buy unpatented supplies to obtain the use of the patented process, the "tying clauses" manifestly would be unlawful. *International Salt Co., Inc. v. United States* (1947), 332 U. S. 392.

Admittedly (R. 20) in ten percent of the cases where both license and supply contracts were executed, they bear the same date.[7] The trial court held this was not unlawful (R. 922). The Circuit Court of Appeals affirmed (R. 1,003). The question is: Where in at least ten percent of the cases the contracts are contemporaneously executed, may it be said that the agreement, which if expressed in one instrument would be unlawful, becomes lawful when couched in two?

If the rule of *International Salt Co., Inc.*, 332 U. S. 392, and its many predecessors, is to serve its purpose of keeping competition free, a device so transparent as that here established by undenied facts, should, as a matter of law, be held unlawful.

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[7] The pertinent provision of Linde's standard electrode contract in use at the time the action was brought specified (Pltf. Exh. 218G).

> "The Seller [Linde] agrees to sell • • • and the Buyer agrees to purchase • • • Buyer's entire requirements of bare rod electrodes for use in a process of electric welding known as the Unionmelt Welding Process • • • for the period of one (1) year • • • and continuing • • • from year to year until cancelled • • •."

[8] Linde's instructions to salesmen were (R. 421) "to avoid having the contract and the license executed the same day • • •." The reason was (R. 421) "so that no one could gain an inference that there was any connection between the two."

IV. COURT HAS DEPARTED FROM ACCEPTED COURSE OF JUDICIAL PROCEEDINGS.

Ordinarily, upon questions of fact, supportable upon the record, the trial judge's views are conclusive. Upon questions of law, the reviewing court traditionally may exercise its own judgment unrestrained by conclusions the trial judge may have reached.

Here the Circuit Court of Appeals reversed the process. It ignored findings of fact, not found wanting in record support, by dealing with them as questions of law; it regarded as substantially unreviewable conclusions of law by reading them as though they were findings of fact.

The result is that the Circuit Court of Appeals disposed of the case by:

1. *Ignoring unreversed findings* of fact that:
   (a) All the procedural steps taught by the patent are old;
   (b) The only novelty presented is the use of a different welding composition;
   (c) The "conductive melt" phenomenon relied upon to distinguish from the prior art, does not exist.

2. *Substituting for the unreversed findings* the erroneous legal conclusions that:
   (a) The sheathed arc, abandoned by the patentees, may be restored to the patent grant;
   (b) Invalidly broad and unambiguous claims may be re-written by resort to the specifications;
   (c) A patent, issued because it disclaimed the arc as the heating medium, may be sustained on the ground this is immaterial.

3. *Treating as unreviewable* findings of fact, which "we may not disturb," the trial court's reading of the patent grant, which is a pure question of law.

By this process the court reached an otherwise unreachable result.

Even if the ignored findings were doubtful and the conclusions of law treated as facts debatable, revision of an approach so erroneous would be called for.

Here, more is involved. The findings ignored are so firmly embedded in record facts that, as a matter of law, the reviewing court could not disturb them. No reasonable mind could differ. Anyone who sees Robinoff alongside Jones will see that the procedural steps are the same, as the trial court found. There is no room for difference. This being so, the finding that the only novelty is in the welding composition is legally unassailable. The record is overwhelmingly convincing that the "conductive melt" process does not exist, as the trial court found. Such is the quality of the findings the court, through error, ignored.

As for the conclusions of law, if the court wrongfully characterized them as fact findings, petitioners would not be hurt were the result clearly right. Nor would the public interest suffer by a legal decision correctly rendered, albeit under misapprehension. This is not that case. The court's legal conclusions are wrong; if not, at the least they are debatable.

Under such circumstances to mix the two is to give less than the review the law demands. It is to settle otherwise than in accordance with "the accepted and usual course of judicial proceedings" the grave questions this case presents, in which the public, too, has an important interest.

The writs should issue.

Respectfully submitted,

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APPENDIX.

EXCERPTS FROM SPECIFICATION DESCRIBING THE CONDUCTIVE MELT PROCESS OF THE PATENT IN SUIT.

Among the various ways in which electrical energy has been converted into heat for the welding of metals, **the arc process** (which itself takes several forms) **is the one most generally practiced.** (R. 955, Col. 1, ll. 2-6.)

A further object is to overcome the difficulties which, in prior processes, are caused by the inherent instability of an electric arc, its liability to be extinguished by a variety of adventitious causes, and the difficulty, especially in automatic machines, of reestablishing the arc when it has been extinguished. (R. 956, Col. 1, ll. 9-15.)

We have discovered a novel process for electric welding **wherein the necessary heat is generated by** the passage of a heavy electric current between a metal electrode (usually bare) and the metal plates or similar objects to be welded, the electrode being out of mechanical contact with the objects and **the current being carried across the gap** between the electrode and the objects **by and through a conductive melt or welding composition having appropriate electrical resistance properties.** The heat thus generated melts successive portions of the electrode and the molten material is deposited as weld filler material. The welding composition serves as an active instrumentality, or welding medium, inasmuch as **it provides heating means,** (R. 956, Col. 1, ll. 20-35.)

The composition of the welding medium is of the utmost importance. (R. 956, Col. 1, ll. 55-56.)

Since the composition is **nonconductive when cold,** a conductive path for the welding current is provided by bridging the gap between the electrode and the work with, for example, a sliver of graphite or a wad of steel wool. The power is then applied, the welding composition **is locally heated until it fuses and becomes conductive, forming a subsurface pool,** and immediately thereafter the end of the electrode begins to fuse and the molten metal begins to deposit in the groove, displacing the subsurface pool of fused welding composition. (R. 957, Col. 1, l. 67—Col. 2, l. 3.)

The relatively high current densities which are preferably used superheat the molten metal and welding composition, making them highly fluid. **The liquid currents set up in this highly fluid mass** effectively mix the metal and welding composition, thereby cleansing or washing impurities out of the metal, and then completely separate the metal as it is deposited. (R. 958, Col. 1, ll. 27-34.)

Several circumstances show clearly that **our process does not depend on the formation of an arc of the usual type.** If, while a weld is being made, the circuit is opened externally of the weld and then closed again **while the resistive composition is still molten,** the current will immediately resume its flow without any necessity for moving the electrode into contact with the seam as it would be necessary to do to reestablish an arc of the usual type. **The heat for melting the electrode is evidently developed in the conductive melt itself.** (R. 958, Col. 1, ll. 42-53.)

The conductive welding composition used in our process doubtless performs the protective functions of a flux, but it is much more than a flux, and many compositions, which are satisfactory **fluxes for arc welding are unsuitable for our purpose.** (R. 958, Col. 1, ll. 54-59.)

EXCERPTS FROM SPECIFICATION DESCRIBING THE WELDING COMPOSITION OF THE PATENT IN SUIT.

We have used calcium silicate and silicates of sodium, barium, iron, manganese, cobalt, magnesium, nickel and aluminum, **both in binary and ternary combinations**, in various proportions. We have also used calcium titanate and various titano-silicates, these being used when it is desired to introduce titanium into the weld metal. While a number of these conductive welding compositions **are more or less efficacious in our process, we prefer to use silicates of the alkaline earth metals, such as calcium silicate**, and we also prefer to add to these silicates minor proportions of alumina and of a substance adapted to lower the melting point, for example, a halide salt. (R. 956, Col. 1, ll. 62-75.)

More specifically, the welding composition preferably comprises, as its principal ingredients, silica (SiO_2), at least one basic constituent consisting of an alkaline earth such as lime (CaO) or magnesia (MgO) or a mixture thereof, and alumina (Al_2O_3). The silica and basic constituent are in approximately the proportions theoretically required to form metasilicates, although a substantial excess of silica is permissible and frequently advisable. (R. 956, Col. 2, ll. 1-10.)

The basic constituent preferably consists chiefly of lime and magnesia in approximately the proportions of three parts of CaO to one part of MgO, by weight; but other proportions are useful and within the invention. Basic materials other than lime or magnesia, for example **oxides of manganese**, titanium, or the alkali metals, and known fluxing agents such as borax or boric acid, **may be added in moderate amounts** without greatly changing the essential characteristics of the welding composition. (R. 956, Col. 2, ll. 25-35.)

It is possible, and may at times be desirable, to include in the welding composition materials which are transferred to the weld filler material during the welding operation and appear in and modify the properties of the completed weld, for example: ferromanganese, ferrosilicon, ferrochromium, calcium molybdate, carbon, or reducible chemical compounds thereof.

In a specific instance, we fused together 50 pounds of calcium carbonate, 9.4 pounds of magnesium oxide, and 40.5 pounds of silica until the reaction was complete. The materials used were of the purest quality used in the ceramic industries, but the fused product showed the presence, on analysis, of about 5% alumina. The fused material was cooled and granulated, and to each pound, one ounce of fluorspar was added. The material was then ready for use to form the conductive melt which is the principal feature of our process.

Welding compositions which have been used successfully and which serve as representative examples within the invention **have the following analyses**, by weight:

	I	II	III	IV
Percent CaO	29.5	31.24	29.18	40.12
Percent MgO	8.7	11.01	8.26	0.89
Percent SiO	56.4	52.40	57.48	52.94
Percent Al_2O_3	5.4	4.11	4.86	5.80
Percent Fe_2O_3	Low	0.13	0.24	0.23

(R. 956, Col. 2, ll. 43-75.)

EXCERPTS FROM REPRESENTATIVE CLAIMS IN ISSUE.

CLAIM No. 1.
(R. 958, Col. 2.)

establishing between said member and said electrode a **conductive path of a high-resistance melt**

passing through said melt an electric current of sufficient strength to **maintain its conductivity,**

CLAIM No. 2.
(R. 958, Col. 2.)

which method comprises supplying heat for said welding by passing an electric current,

substantially wholly **through a pool of silicate fused in situ, without the formation of any substantial gas-conducted electric arc.**

CLAIM No. 5.
(R. 959, Col. 1.)

establishing between said member and said electrode a conductive path of a **high-resistance melt of fusible silicate,**

passing through said melt an electric current of sufficient magnitude to maintain the conductivity,

CLAIM No. 7.
(R. 959, Col. 1.)

filling the gap between said electrode and said member **with** a finely-divided, unbonded, nonmetallic **material which is fusible at welding temperatures;**

fusing a portion of **said material in said gap** to render the material electrically conductive;

passing through the **circuit comprising said electrode, fused material, and work piece** an electric current

and to **maintain a pool** of said nonmetallic material in contact with said electrode

CLAIM No. 9.
(R. 959, Col. 2.)

bridging the fusing end of said electrode and the adjacent fused local area of the work with **a pool of material fused in situ** without substantial gas evolution, **said fused material being electrically conductive**

CLAIM No. 11.
(R. 959, Col. 2.)

11. A process of electric welding which comprises the step of **forming a conductive high-resistance melt,**

and passing an electric current through a **circuit comprising said melt** and said metal part.

CLAIM No. 18.
(R. 960, Col. 1.)

18. A composition for electric welding containing a **major proportion of alkaline earth metal silicate,** and being substantially free from uncombined iron oxide and from substances capable of evolving gases under welding conditions.

CLAIM No. 24.
(R. 960, Col. 2.)

24. A fluxing material for electric welding comprising **metallic silicate** and calcium fluoride.

CLAIM No. 26.
(R. 960, Col. 2.)

26. An electric welding composition which is **conductive when molten,** consists **chiefly of silicates,** and contains about 1% to 8% alumina.

CLAIM No. 27.
(R. 960, Col. 2.)

27. A pretused electric welding **composition which is conductive when molten** and the principal constituents of which are alkaline earth metal silicates.